
Subject: 3D heart

Posted by [rensheu](#) on Wed, 09 Feb 2005 17:30:15 GMT

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Dear all,

Here goes a funny stuff you might be interested. There is a 3D heart object could be used for the coming Valentine's day.

Cheers,
R.D.

Pro HeartShape
forward_function oHeart

oHeart = Heart3D()

oModel = obj_new('IDLgrModel')
;oModel -> Rotate, [0,0,1], 20
;oModel -> Rotate, [1,0,0], -30

oText = obj_new('IDLgrText', 'Happy Valentine"s Day!! ', \$
 COLOR=[255,250,250], location=[-1.5,-1.3, 0.8],
char_dim=[0.26,0.26], \$
 updir=[0,0,1], baseline=[1,0, -0.5])

oGreeting = obj_new('IDLgrText', 'Dear All,', \$
 COLOR=[255,250,250], location=[-1.5, 1.3, 0.8],
char_dim=[0.26,0.26], \$
 updir=[0,0,1], baseline=[1,0, -0.5])

oName = obj_new('IDLgrText', 'R.D.', \$
 COLOR=[255,250,250], location=[0.5, -1.3, -1.2],
char_dim=[0.26,0.26], \$
 updir=[0,0,1], baseline=[1,0, -0.5])

oModel -> Add, oHeart
oModel -> Add, oText
oModel -> Add, oGreeting
oModel -> Add, oName

xobjview, oModel, background=[255, 170, 170], \$
 Title='Happy Valentine"s Day!! <:o)', scale=0.72

for i=0, 50 do \$
 XOBJVIEW_ROTATE, [1,0,-0.5], -1 ;, /PREMULTIPLY

```
return  
End
```

Function Heart3D

```
; This heart shape curve is referring to the following URL:  
; http://www.mathematische-basteleien.de/heart.htm  
; Threedimensional curve, source: Gabriel Taubin [for example  
MathWorld]  
;  $(X^2 + (9./4.) * Y^2 + Z^2 - 1.)^3 - X^2 * Z^3 - (9./80.) * Y^2 * Z^3 = 0.$ 
```

```
NX = 250 ;resolution  
NY = 8
```

```
For j=0, NY do begin  
  Y = 2./3.*1.1*(-1+ 1./NY*j)  
  for i=0, NX do begin  
    X = -1.5 + 3.0/NX*i  
    a = 1.0  
    b = (X^2+9./80.*Y^2)^(1./3.)  
    c = (X^2+9.*Y^2/4.-1.0)  
    det = b^2 - 4.*a*c  
    if(det ge 0.0) then $  
      if(N_ELEMENTS(rVert1) le 1) then $  
        rVert1 = [X, -(b+sqrt(det))/(2.*a), Y ] $  
      else begin  
        rVert1 = [[rVert1], [X, -(b+sqrt(det))/(2.*a), Y]]  
        rVert1 = [[X, -(b-sqrt(det))/(2.*a), Y], [rVert1]]  
      endelse  
    Endfor  
    if (N_ELEMENTS(rVert1) ge 3) then begin  
      if (N_ELEMENTS(oROI) eq 0) then $  
        oROI = obj_new('IDLgrROI', rVert1) $  
      else $  
        oROI = [oROI, obj_new('IDLgrROI', rVert1)]  
      endif  
      rVert1 = 0  
    endfor
```

```
oROIGROUP = obj_new('IDLgrROIGroup')  
oROIGROUP -> Add, oROI
```

```
result = oROIGROUP -> Computemesh(rVert, rConn, capped=2)
```

```
obj_destroy, oROI  
obj_destroy, oROIGROUP
```

```
rVert1 = rVert
```

```
rVert1[2,*] = abs(rVert1[2,*])
```

```
result = mesh_merge(rVert, rConn, rVert1, rConn)
```

```
oObj = obj_new('IDLgrPolygon', rVert, Style=2, COLOR=[255,0,0],  
POLYGON=rConn, shading=1)
```

```
return, oObj
```

```
End
```
